

Remarks

Claims 1-40 are pending in the present application. Claims 1-19 and 21-40 are presently rejected. Claim 20 is allowed.

1.) Rejection of Claims 1-3 and 7-12 under 35 USC §102

Claims 1-3 and 7-12 are rejected under 35 USC §103 as being obvious over US Patent 5,434,911 (Gray) in view of US Patent 4,348,730 (Emerson).

Specifically, the Examiner asserts that Gray teaches an apparatus for monitoring a meter that includes: a meter (Figure 1, Unit 8); an electronic data recorder (Figure 1, Unit 6); an external unit (Figure 1, Unit 4) that uses a communication protocol that comprises and initialization signal and a clock signal (Figure 2a). The Examiner acknowledges that Gray does not teach an interval identification signal with a unique signal width. However, the Examiner asserts that Emerson teaches an interval identification signal that identifies a present reading cycle with a unique signal width (Figure 2 and Column 4, Lines 55-60). The Examiner concludes that it would be obvious to combine the teachings of Gray with Emerson to achieve the claimed invention.

In response, the Applicant has amended Claim 1 to further distinguish the claimed invention from the combination of Gray and Emerson. Specifically, Claim 1 has been amended to claim an interval identification signal with a unique signal width “where the unique signal width comprises a multiple of a signal cycle width”. Support for this amendment is found in Paragraphs 0039 and 0040 of the Specification (pages 10 and 11) which state:

In one embodiment of the invention, a communications protocol is used to activate the electronic data recorder with its ASIC and take a data reading at regular intervals for a specified period. The communications protocol includes: an initialization signal; an interval identification signal; and a clock signal. In this embodiment, the specified period is one hour with four separate readings at 15 minute intervals. These readings are referred to as: the “0 Minute Reading”; the “15 Minute Reading”; the “30 Minute Reading”; and the “45 Minute Reading”.

At the beginning of each 15 minute interval, an initialization signal 44 is sent with the clock signal. It is immediately followed by interval

identification signal 46 that identifies which 15 minute cycle is being recorded. Figure 7 shows a timing diagram of an initialization signal 44 followed by an interval identification signal 46 and a clock signal 42 operating at 1200 Hz. In the embodiment shown, the interval identification signal 46 is two 1200 Hz signal widths in duration. The term “signal width” should be understood to be one half the duration of a full signal cycle that includes a high phase and a low phase. This signal 46 identifies the first 15 minute cycle reading of a specified period. The first reading is referred to as the “0 Minute Reading”. Figure 8 shows a timing diagram for the second 15 minute cycle reading referred to as the “15 Minute Reading”. As in Figure 7, the initialization signal 44 is followed by an interval identification signal 46 and a clock signal 42 operating at 1200 Hz. However, the identification signal 46 is three 1200 Hz signal widths. Figure 9 shows a timing diagram for the third 15 minute cycle reading referred to as the “30 Minute Reading”. As in Figures 7 and 8, the initialization signal 44 is followed by an interval identification signal 46 and a clock signal 42 operating at 1200 Hz. However, the identification signal 46 is four 1200 Hz signal widths. Figure 10a shows a timing diagram for the fourth 15 minute cycle reading referred to as the “45 Minute Reading”. As in Figures 7 - 9, the initialization signal 44 is followed by an interval identification signal 46 and a clock signal 42 operating at 1200 Hz. However, the identification signal 46 is five 1200 Hz signal widths. In some instances, a specialized reading outside of the 15-minute intervals may be necessary. Such a specialized cycle reading may be identified by a special identification signal such as six 1200 Hz signal widths or any other unique width. Figure 10b shows a timing diagram with an initialization signal 44 that is followed by an interval identification signal 46 and a clock signal 42 operating at 1200 Hz. In this example, the interval identification signal 46 is six 1200 Hz signal widths wide. This signal allows a reading to be taken without incrementing the internal 15-minute clock or updating any time related calculations. It is important to realize that the key feature of the timing signals is the “interval identification signal”. The interval identification signal serves to identify the expiration of a time period or a non-timed interval request for information. (emphasis added)

As presently claimed, the invention includes an interval identification signal that identifies the present reading cycle of data by using a signal width that is unique. This unique signal width comprises “a multiple of a signal cycle width”.

In contrast, Emerson does not disclose, teach or suggest a unique interval identification signal that has a signal width that is a multiple of a signal cycle width. Instead, Emerson only mentions modifying the processed signal to “provide any additional time information such as time interval.” Emerson provides no detail as to how

to modify the processed signal. Further, Emerson does not disclose, teach or suggest identifying the time interval with a unique interval identification signal width. Instead, the signals shown in Figure 2 are uniform and do not vary in width to provide a unique signal for each time interval as claimed. Consequently, this rejection fails for at least these reasons.

2.) Rejection of Claims 4-6 under 35 USC §103

Claims 4-6 are rejected under 35 USC §103 as being obvious over Gray in view of Emerson and in further view of US Patent 6,191,687 (Dlugos). Since Claims 4-6 are dependent upon independent Claim 1, this rejection fails for the same reasons stated previously in Section 1.

3.) Rejection of Claims 13-16, 23, 28-32, 37, and 40 under 35 USC §103

Claims 13-16, 23, 28-32, 37, and 40 are rejected under 35 USC §103 as being obvious over Gray in view of Emerson in further view of US Patent 6,952,970 (Furmidge). Since Claims 13-16 are dependent upon independent Claim 1, this rejection fails for the same reasons stated previously in Section 1. Additionally, independent Claims 23, 28 and 40 have also been amended to include similar limitations as added to Claim 1. Consequently, the rejection of Claims 23, 28-32, 37 and 40 fails for the same reasons stated previously in Section 1.

4.) Rejection of Claim 17 under 35 USC §103

Claim 17 is rejected as being obvious over Gray in view Emerson and in further view of US Patent 4,938,053 (Jepson). Since Claim 17 is dependent upon independent Claim 1, this rejection fails for the same reasons stated previously in Section 1.

5.) Rejection of Claims 24 and 33 under 35 USC §103

Claims 24 and 33 are rejected as being obvious over Gray in view of Emerson in further view of Furmidge and in further view of Jepson. Since Claims 24 and 33 are dependent upon independent Claims 23 and 28 respectively, this rejection fails for the same reasons stated previously in Sections 1 and 4.

6.) Rejection of Claims 25-27 and 34-36 under 35 USC §103

Claims 25-27 and 34-36 are rejected as being obvious over Gray in view of Emerson in further view of Furmidge and in further view of US Patent 6,755,148 (Holowick). Since Claims 25-27 and 34-36 are dependent upon independent Claims 23 and 28 respectively, this rejection fails for the same reasons stated previously in Sections 1 and 4.

7.) Rejection of Claims 18, 19, 21 and 22 under 35 USC §103

Claims 18, 19, 21, and 22 are rejected as being obvious over Gray in view of Emerson and in further view of Holowick. Since Claims 18, 19, 21 and 22 are dependent upon independent Claim 1, this rejection fails for the same reasons stated previously in Section 1.

8.) Conclusion:

In view of the preceding amendments and remarks, all outstanding rejections of the pending claims have been overcome. Consequently, a favorable action in the form of a notice of allowance is respectfully requested. Please apply any additional fees or credits to Deposit Account #: 50-4293, Reference #: N2215-84536.

Respectfully Submitted,

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